

at page 37, lines 15-22. New claim 33 is supported by the specification, for example, at page 37, lines 28-31. New claim 34 is supported by the specification, for example, at page 37, lines 28-31 and page 39, lines 3-9. New claim 35 is supported by the specification, for example, at page 38, lines 9-28. No new matter is added by the amendment of claim 1 or by the new claims.

Applicants thank the Examiner for the courtesy extended to their undersigned representative in a phone interview on April 4, 2000. The Iga et al. (5,770,113) reference was discussed.

Applicants respectfully request reconsideration of the rejection of the claims based on the following analyses.

Rejections Under 35 U.S.C. 112

The Examiner rejected claims 4-6 under 35 U.S.C.. 112, second paragraph, as being indefinite. In particular, the Examiner pointed to particular language in each of claims 4-6 with respect to the indefiniteness. Applicants respectfully request reconsideration of the indefiniteness in view of the following comments.

In claim 4, the Examiner indicated that the combination of the phrase "about four times the average diameter" in combination with the "less than about 95 nm" in claim 1 was indefinite. The average particle size limit of claim 1 provides a particular limit to the average particle size. For any actual collection of zinc oxide particles in a powder, it will have an average particle size that can be compared with the claimed limitation. The limitation in claim 4 relates to the extent of the particle size distribution around the average. When evaluating the distribution under the limitation of claim 4, the average particle size is referenced to a particular average value, not to the claimed range of average particle sizes. Therefore, the evaluation of the two limitations are uncoupled from each other. For example, if the actual average particle size of a collection of particles is 50 nm, the limitation of claim four would indicate that no particles in the collection

have a diameter greater than about 200 nm. Since the two evaluations are uncoupled, Applicants believe that the limitations are definite.

Claim 5 has a limitation analogous to claim 4. Applicants believe that claim 5 is definite for the same reasons as claim 4.

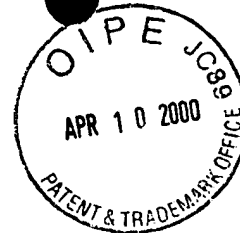
While Applicants believe that claim 6, as filed, was definite to a person of ordinary skill in the art, Applicants have amended claim 6 to delete the reference to "about" objected to by the Examiner.

Based on the amendment of claim 6 and the above comments, Applicants respectfully request the withdrawal of the rejection of claims 4-6 under 35 U.S.C. §112, second paragraph, as being indefinite.

Rejections Under 35 U.S.C. §102

The Examiner rejected claims 1-9 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 5,699,035 to Ito et al. (the Ito patent). In particular, the Examiner asserted that the Ito patent disclosed zinc oxide particles with an average diameter from 10 nm to 300 nm. Applicants respectfully request reconsideration based on the following comments.

The Ito patent discloses the formation of zinc oxide from a zinc alkoxide. See, for example, column 4, lines 55-59. A solution of the zinc alkoxide is applied to a substrate, for example, by spin coating or spray coating. See column 5, lines 14-28. During the drying step, the zinc alkoxide is converted to zinc oxide. See column 5, lines 32-35. The zinc oxide is formed as a continuous thin **layer** on the substrate. No discrete particles are ever present. Presumably, nanocrystals are embedded within this layer since the Ito patent indicates that "zinc oxide layer" includes "crystal grains" with average diameters of about 10 nm to about 300 nm. See column 2, lines 45-48. While the Ito patent refers to particle diameters at column 2, line 47, it is clear in



context that the Ito patent is referring to crystal grain sizes within a bulk quantity of zinc oxide forming a continuous layer.

The Ito patent does not teach or suggest distinct particles. Evidently, the zinc oxide **layer** formed by the process of the Ito patent is a polycrystalline material with embedded nanocrystals. Applicants' claims are directed to a collection of nanoparticles not to nanocrystals embedded in a solid bulk quantity of zinc oxide. To clarify the nature of Applicants' invention, claim 1 was amended to indicate that the collection of particles is in the form of a powder. Since the Ito patent does not teach or suggest zinc oxide **nanoparticles**, the Ito patent does not anticipate Applicants' claimed invention.

Applicants respectfully request the withdrawal of the rejection of claims 1-9 under 35 U.S.C. §102(b) as being anticipated by the Ito patent.

CONCLUSIONS

In view of the above amendments and remarks, Applicants submit that this application is in condition for allowance, and such action is respectfully requested. The Examiner is invited to telephone the undersigned attorney if the Examiner has any questions or comments.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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